

U.S. Patent Application No. 10/811,320
Amendment dated September 26, 2007
Reply to Office Action of June 27, 2007

REMARKS/ARGUMENTS

Reconsideration and continued examination of the above-identified application are respectfully requested.

Claims 19-40 are pending. Claims 19-21 are examined due to the elected invention. Claims 22-40 are withdrawn by the Examiner. Claim 19 has been amended as indicated. Full support for this amendment can be found, for instance, at page 6, line 14 to page 7, line 23, and elsewhere in the present application, including the drawings as originally filed. Accordingly, no questions of new matter should arise and entry of the amendment is respectfully requested.

Restriction Requirement

At pages 2-4 of the Office Action, the Examiner sets forth the reasons for the Restriction Requirement. Applicants affirm the election of Group I, directed to claims 19-21. The applicants do believe that, at a minimum, the subject matter of Groups II and III can be examined at this time, since they are in the same class and subclass. Similarly, the subject matter of Groups IV-VI can be examined together for similar reasons. Reconsideration is respectfully requested.

Rejection of claims 19-21 under 35 U.S.C. §103(a) – Ruffa in view of Kerner et al. and further in view of Ishikawa et al.

At page 5 of the Office Action, the Examiner then rejects claims 19-21 under 35 U.S.C. §103(a) as being unpatentable over Ruffa (U.S. Patent No. 6,503,580) in view of Kerner et al. (U.S. Patent No. 3,908,904) and further in view of Ishikawa et al. (U.S. Patent No. 4,799,622).

With respect to Ruffa, the Examiner at pages 5 and 6 of the Office Action referred to various parts of Ruffa to argue that Ruffa shows a coating method which uses supersonic

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vibrations. The Examiner acknowledges that Ruffa does not teach the use of an atomizer using a rotary head spattering mechanism but the Examiner states that conventional spraying material can be used. The Examiner then relies on Kerner et al. for purposes of asserting that the use of a rotary head on an atomizer would be obvious in the area of ultrasonic atomizing. Also, the Examiner asserts that Ishikawa et al. shows an annular vibration plane located around the rotary head and exerting supersonic vibration forward. This rejection is respectfully traversed.

One aspect of the present invention is the use of the vibration plane (6a, 106a) of the supersonic horn (6, 106) in combination with the rotary atomizing head (4, 103) to atomize a coating material into fine, uniform-sized particles by directly imparting ultrasonic vibrations to the coating material and simultaneously coordinate the traveling direction of the atomized coating material toward an intended area.

The method in Ruffa does not use any supersonic vibration for purposes of atomizing a coating material. Ruffa first coats a substrate with a liquid polymer coating and then afterwards uses an acoustic pressure field which is applied toward the layer of liquid polymeric coating. Thus, from a reading of Ruffa, there is no simultaneous use of acoustic pressure to atomize coating material.

More specifically, Ruffa first coats a substrate and then afterwards applies an acoustic pressure field to the layer of the coating to minimize unevenness or gradients of the thickness of the paint layer (col. 2, lines 58-59 of Ruffa). The acoustic pressure field of Ruffa does not function to direct the paint from the nozzle toward a work or to shape the mist of paint so as to not spread in random directions.

With respect to Kerner et al., this reference does describe an ultrasonic atomizer. However, the main purpose is for waste sulphuric acid and it appears to be not used in the area of painting.

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As recognized by the Examiner, Kerner et al. does not appear to use a vibration plane to impart supersonic vibrations.

More specifically, with reference to col. 7, lines 26-50 of Kerner et al., this patent sets forth a rotary type atomizer (Fig. 2), but, a target substance appears to be atomized in an ultrasonic field indirectly by acoustically vibrated gas from the cavity 3k, and not directly by a vibration plane. Further, the ultrasonic field of Kerner et al. does not appear to direct the mist of the acid.

Finally, with respect to Ishikawa et al., this reference is for the purpose of atomizing fuel. This reference is not related to atomizing or applying coatings. Further, the overall atomizing apparatus of Ishikawa et al. is significantly different from Kerner et al. and even Ruffa. One skilled in the art would not apply the teachings of Ishikawa et al. to Kerner et al. or to Ruffa. The Examiner is taking an improper position by asserting that any atomizing apparatus is analogous art and, therefore, one skilled in the art would combine the various teachings. The particular structure and purpose of Ishikawa et al. are significantly different from Kerner et al. and Ruffa. Further, the overall design of Ishikawa et al. clearly would not permit one to form coatings and certainly would not permit the use of a supersonic vibration along with a rotary head.

Therefore, even if the references, if combinable, were combined, they would not teach or suggest the claimed invention for at least the reasons provided above. Accordingly, this rejection should be withdrawn.

CONCLUSION

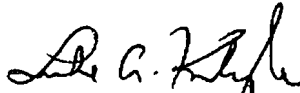
In view of the foregoing remarks, the applicant respectfully requests the reconsideration of this application and the timely allowance of the pending claims.

If there are any fees due in connection with the filing of this response, please charge the fees

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to Deposit Account No. 50-0925. If a fee is required for an extension of time under 37 C.F.R. §
1.136 not accounted for above, such extension is requested and should also be charged to said
Deposit Account.

Respectfully submitted,



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